REMARKS/ARGUMENTS:

Claims 1, 5, and 14-23 are canceled without prejudice. Claims 2-4, 6, 8, 9, 12, 13, and 24 are amended. Claims 2-4, 6-13, 24-27 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The present invention relates to a glass ceramic sintered body that is best suited as an insulating substrate in a wiring board used for packages for accommodating semiconductor devices (semiconductor packages), to a method of producing the glass ceramic sintered body and to a wiring board using the glass ceramic sintered body. In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested. (Applicants' specification, at p. 1, lines 6-12).

CLAIM REJECTIONS UNDER 35 U.S.C. § 112:

Claims 3, 4, 6, 11, and 12 stand rejected under 37 C.F.R. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

The Office states that in claim 3 "the content of PbO and the content of alkali metal oxide" lacks antecedent basis. In response, the Applicants changed "the content of PbO and the content of alkali metal oxide" to --comprising PbO and an alkali metal oxide--. Withdrawal of this rejection is thus respectfully requested.

The Office states that in claim 4 "zirconif" should be --zirconia--. In response, the Applicants amended the claim in the manner suggested by the Office. Withdrawal of this rejection is thus respectfully requested.

The Office states that in claim 6 it is not clear how the cordierite powder is used and whether this is in alternative to the other fillers. The Applicants respectfully disagree. The Applicants believe the claim is clear as written. Claim 6 claims a glass ceramic sintered body containing a cordierite crystal phase. The Applicants believe there is nothing indefinite about a glass ceramic sintered body containing a cordierite crystal phase. In addition, there is nothing in claim 6 that would preclude the use of other fillers since the word "containing" is open ended claim language. Furthermore, the Applicants' specification, at p. 7, line 5-p. 9, line 5 describes how the cordierite powder is used. Withdrawal of this rejection is thus respectfully requested.

The Office states that in claim 11 it is not clear if the recited fillers are in the alternative or each of the fillers are required to be present. The Applicants respectfully disagree. The Applicants believe the claim is clear as written. Claim 11 recites that a CaO-releasing Ca compound powder, a cordierite powder and an alumina powder are used as said filler powders. Therefore, all three powders are used. Withdrawal of this rejection is thus respectfully requested.

The Office states that in claim 12 "the [cordierite,] enstatite and/or fosterite" lacks clear antecedent basis and terminology such as "further comprising" is suggested. In response, the Applicants changed "the cordierite, enstatite and/or fosterite" to --comprising cordierite, enstatite and/or forsterite--. Withdrawal of this rejection is thus respectfully requested.

The Office states that in claim 13 "the cordierite powder, enstatite powder and/or fosterite powder" lacks antecedent basis for powders In response, the Applicants changed "the cordierite powder, enstatite powder and/or fosterite powder" to -- the cordierite, enstatite and/or forsterite --. Withdrawal of this rejection is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102/§ 103:

Claims 1-3 and 24-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Holleran et al., U.S. Patent No. 4,714,687. This rejection is moot with respect to claim 1 due to the cancellation of this claim. The Applicants respectfully traverse this rejection as to claims 2, 3, and 24-27. Claims 2, 3, and 24-27 now depend from claim 8 which was rewritten in independent form. Claim 8 stands rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Japanese document 4-321258 (JP 4-321258). Claim 8, as amended, is as follows:

> A glass ceramic sintered body containing gahnite and cordierite as crystal phases, comprising a thermal expansion coefficient at 40 to 400°C of not larger than 5 x $10^{-6/°}$C, a dielectric constant of not larger than 7 and a Young's modulus of not larger than 150 GPa, obtained by firing a mixed powder of a glass powder having the following composition:
>
> SiO_2: 30 to 55 mass %
>
> Al_2O_3: 15 to 40 mass %
>
> MgO: 3 to 25 mass %
>
> ZnO: 2 to 15 mass %
>
> B_2O_3: 2 to 15 mass %
>
> and a filler powder, wherein the glass ceramic sintered body further comprises a CaO-containing glass phase.

Applicants respectfully submit that JP 4-321258 cannot anticipate or render obvious claim 8, because JP 4-321258 fails to teach or suggest a filler powder,

having a CaO-containing glass phase. The Office relies on JP 4-321258 for teaching gahnite and cordierite crystal phases. However, neither gahnite nor cordierite contain CaO. Furthermore, Applicants fail to find anything in the abstract of JP 4-321258 that teaches or suggests a filler powder, having a CaO-containing glass phase. Holleran, similarly, fails to teach or suggest a filler powder, having a CaO-containing glass phase and is not relied upon by the Office for such. Instead, the Office cites Holleran for teaching glass ceramic substrates for electronic devices having cordierite and gahnite phases, a thermal expansion of 35-45 x 10^{-7} and a dielectric constant of between 5-6.

It is an aspect of the present invention that the glass ceramic sintered body of is obtained by firing by using the glass powder. Namely, constituent components forming a portion of the glass powder are precipitated as crystals, and the remaining components exist as a glass phase. It is desired that CaO is existing in the remaining glass phase. Namely, during the firing, CaO is generated from the filler powder (CaO-releasing Ca compound) and dissolves in the glass phase. The glass powder used in the present invention contains B_2O_3 as an essential component to lower the softening temperature and the melting temperature. B_2O_3 serves as a serious factor for lowering the chemical resistance of the sintered body. However, CaO that is dissolved in the glass phase as described above infiltrates predominantly into a three-coordinate network of B_2O_3 in the glass phase, causes the network of B_2O_3 to be changed into a four-coordinate network having excellent chemical resistance thereby to improve the chemical resistance of the sintered body. (Applicants' specification, at p. 10, lines 6-26). Thus, the CaO helps improve the chemical resistance of the sintered body.

In light of the foregoing, Applicants respectfully submit that the cited references could not have anticipated or rendered obvious claim 8, because the cited

references fail to teach or suggest each and every claim limitation. Claims 2, 3, and 24-27 depend from claim 8 and therefore, cannot be anticipated or rendered obvious for at least the same reasons as claim 8. Withdrawal of these rejections is thus respectfully requested.

Claims 1-3, 5, 6, 24-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Carrier et al., U.S. Patent No. 5,001,086. This rejection is moot with respect to claims 1 and 5 due to the cancellation of these claims. The Applicants respectfully traverse this rejection as to claims 2, 3, 6, and 24-27. Claims 2, 3, 6, and 24-27 now depend from claim 8. Claim 8, as discussed above, is patentable over JP 4-321258. Carrier cannot remedy the defect of JP 4-321258 and is not relied upon by the Office for such. Instead, the Office cites Carrier for teaching a glass composition comprising 2-18 wt% MgO, up to 21% ZnO, 20-38% Al_2O_3:, 40-52% SiO_2 and up to 5% B_2O_3.

In light of the foregoing, Applicants respectfully submit that the cited references could not have anticipated or rendered obvious claims 2, 3, 6, 8, and 24-27, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claims 1-5, 7, 12, 13, and 24 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Terashi et al., U.S. Patent No. 5,756,408. This rejection is moot with respect to claims 1 and 5 due to the cancellation of these claims. The Applicants respectfully traverse this rejection as to claims 2-4, 7, 12, 13, and 24. Claims 2-4, 7, 12, 13, and 24 now depend from claim 8. Claim 8, as discussed above, is patentable over JP 4-321258. Terashi cannot remedy the defect of JP 4-321258 and is not relied

upon by the Office for such. Instead, the Office cites Terashi for teaching a strength value of about greater than 15 kg/mm^2 and a dielectric constant less than 7.

In light of the foregoing, Applicants respectfully submit that the cited references could not have anticipated or rendered obvious claims 2-4, 7, 8, 12, 13, and 24, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claims 1-7 and 24-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Japanese document 9-17583 (JP 9-17583). This rejection is moot with respect to claims 1 and 5 due to the cancellation of these claims. The Applicants respectfully traverse this rejection as to claims 2-4, 6, 7, and 24-27. Claims 2-4, 6, 7, and 24-27 now depend from claim 8. Claim 8, as discussed above, is patentable over JP 4-321258. JP 9-17583 cannot remedy the defect of JP 4-321258 and is not relied upon by the Office for such. Instead, the Office cites JP 9-17583 for teaching a sintered material including cordierite and gahnite with the addition of a cordierite powder as a filler.

In light of the foregoing, Applicants respectfully submit that the cited references could not have anticipated or rendered obvious claims 2-4, 6-8, and 24-27, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claims 1-13 and 24-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Japanese document 4-321258. This rejection is moot with respect to claims 1 and 5 due to the cancellation of these claims. The Applicants respectfully traverse this rejection as to claims 2-4, 6-13, and 24-27. Claims 2-4, 6, 7, 9-13, and 24-27 depend from claim 8. Claim 8, as discussed above, is patentable over JP 4-321258.

In light of the foregoing, Applicants respectfully submit that the cited references could not have anticipated or rendered obvious claims 2-4, 6-13, and 24-27, because the cited references fail to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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